

# GOLOWELL MULTIMODAL PLAN

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## Appleton & Broadway St Bicycle Corridor Improvements

12/10/2020



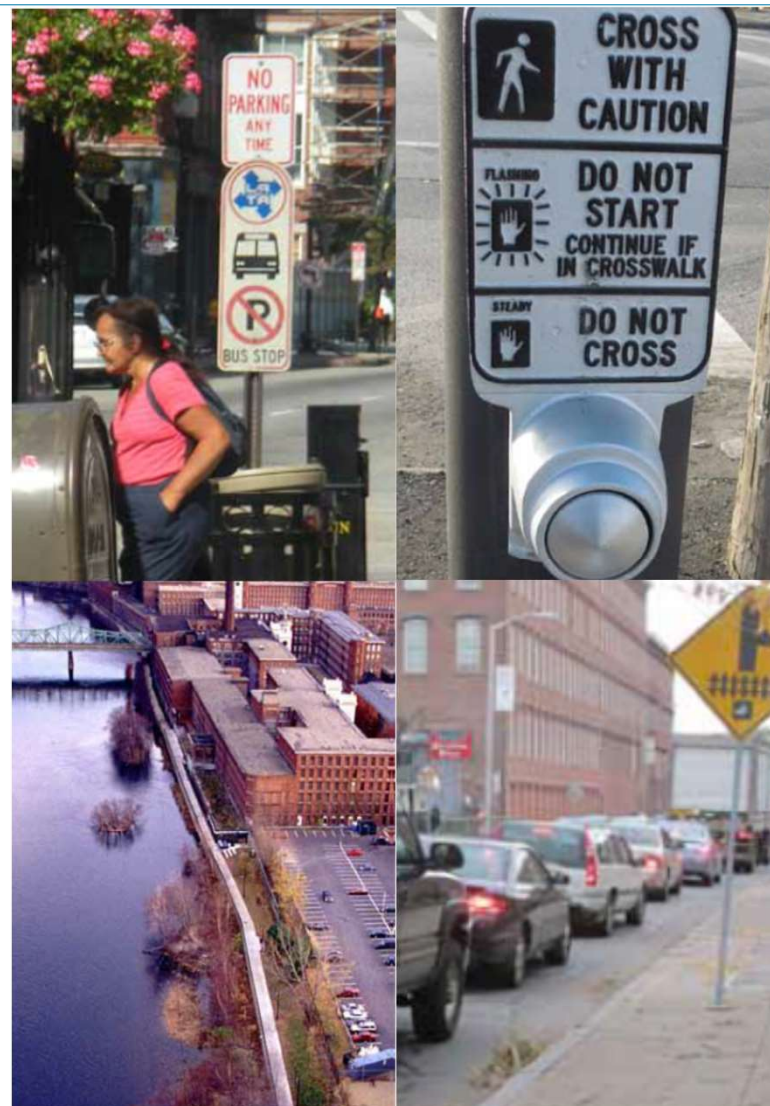
# Introductions

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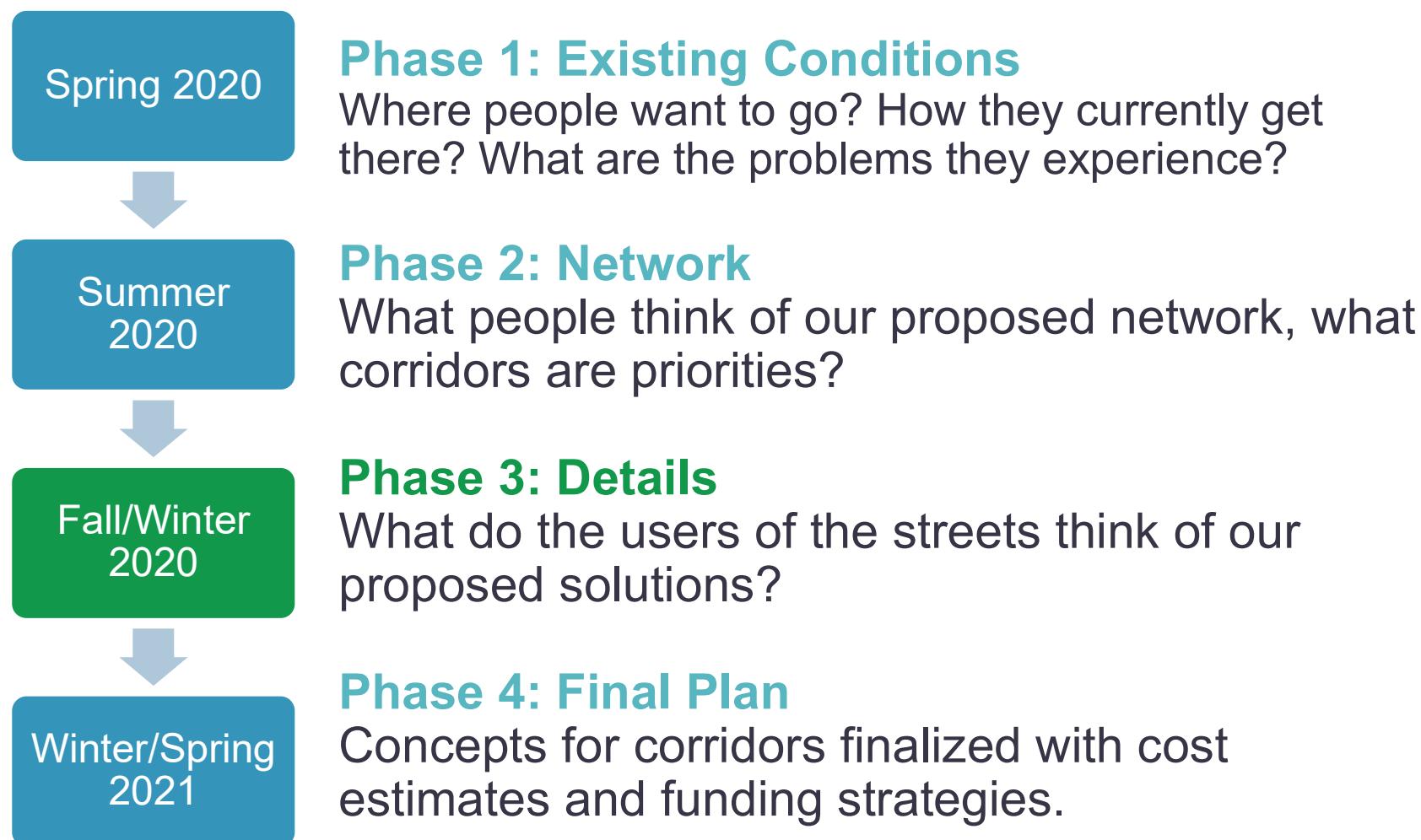
- Chris Hayes, Neighborhood Planner, City of Lowell
- Kristin Saunders, Senior Planner, Toole Design
- Karen Fitzgerald, Landscape Architect Director, Toole Design

# What is GoLowell?

- **Citywide** plan focusing on busses, bikes, walking, rolling, and more
- **10 year** plan
- **Downtown transit pilot** already funded
- Plan will include **funding strategies for other improvements**



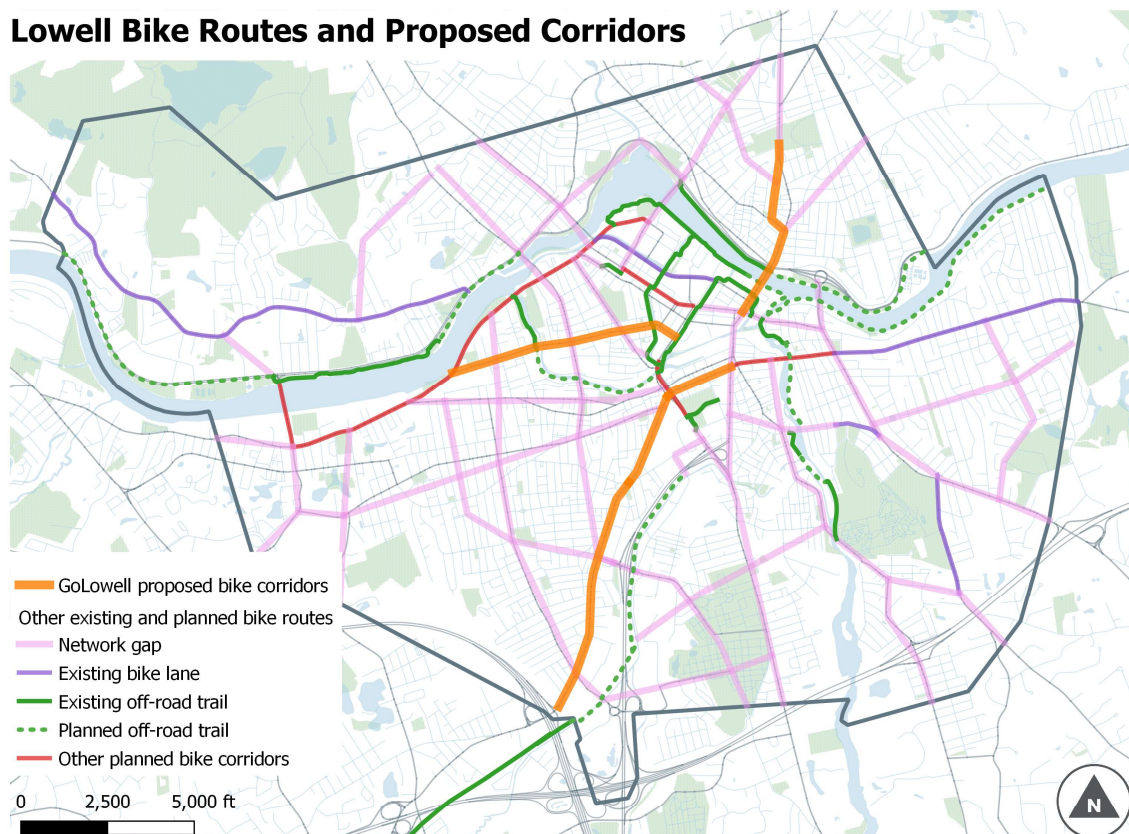
# What We've Done So Far



# Phase 2 Results: Our Network

- Based on public feedback and equity analysis
- Focus corridor concepts designed now
- Other links will be designed in the future
- Full design and construction depends on funding
- Network may still be tweaked before 2021

**Lowell Bike Routes and Proposed Corridors**

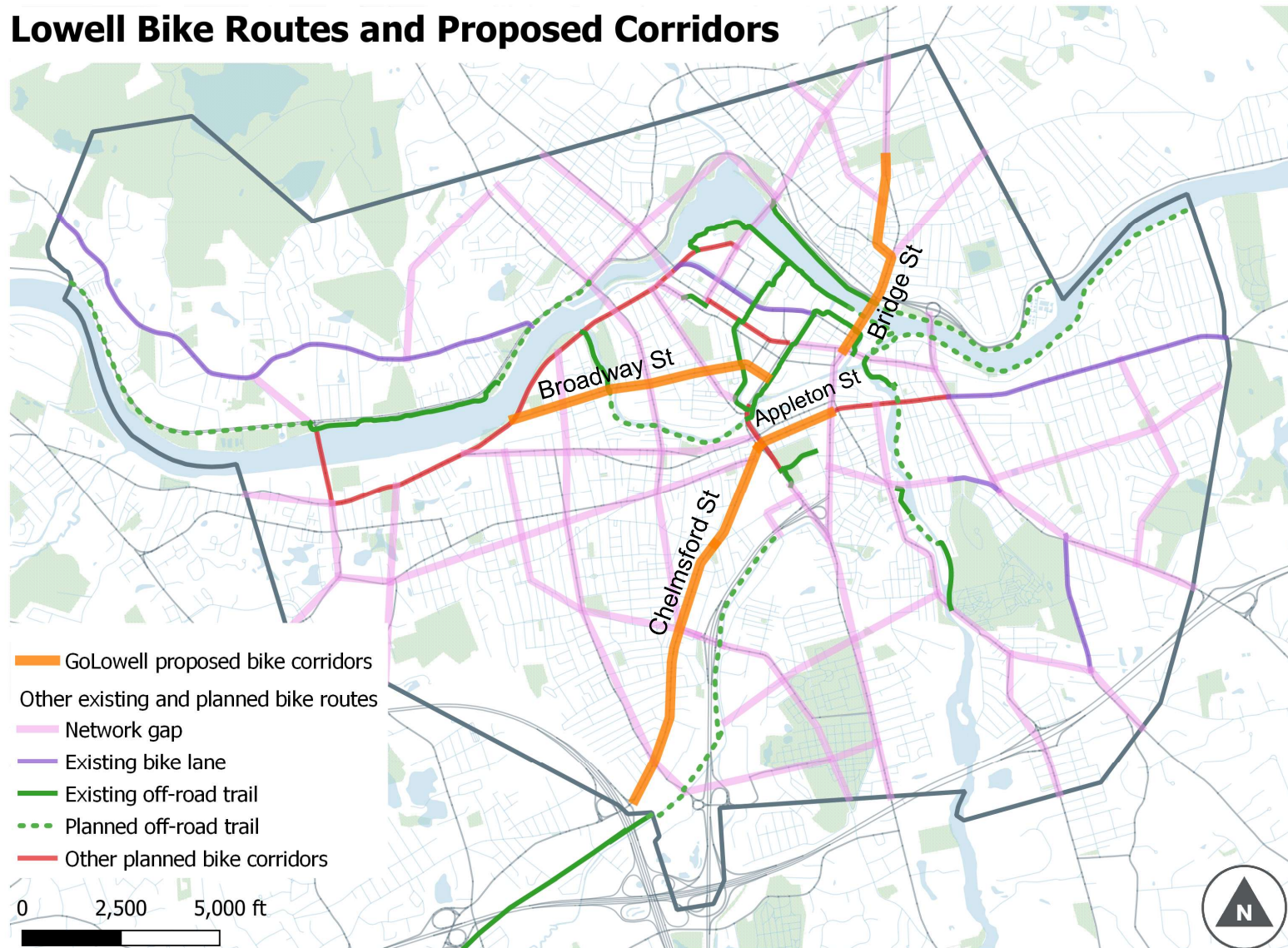




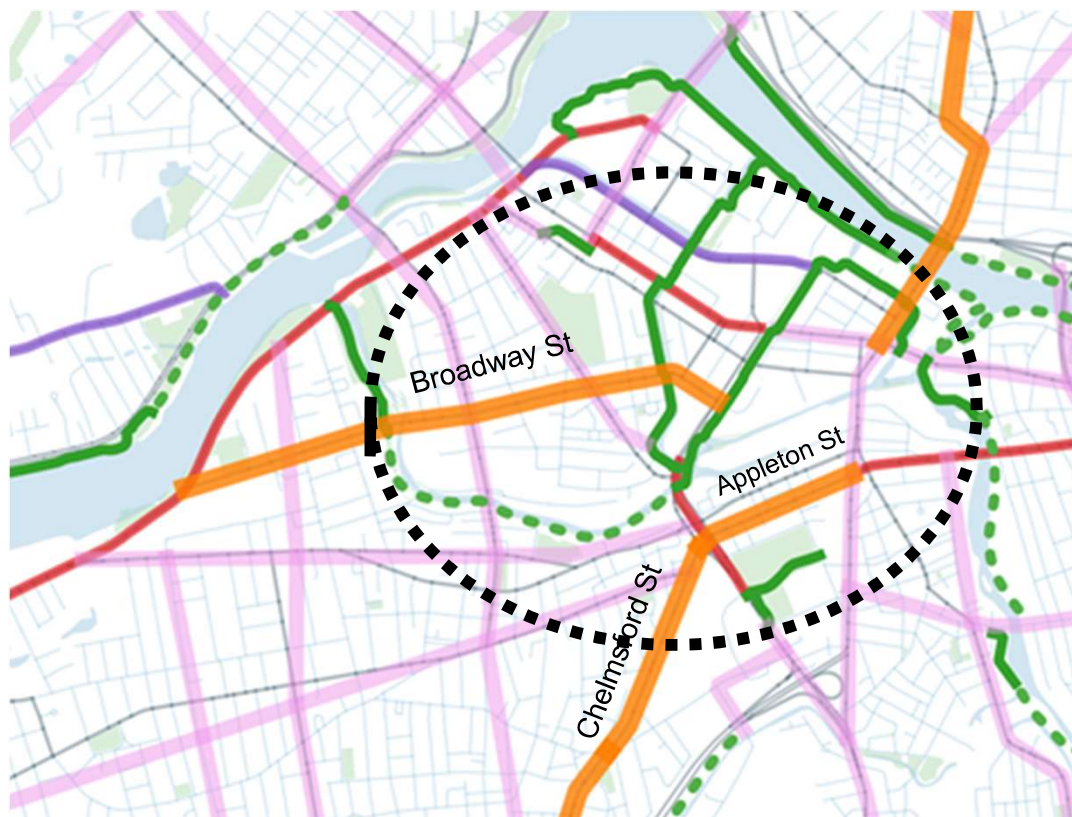
## Lowell Bike Routes and Proposed Corridors



**T'OOLE**  
DESIGN



# Downtown access

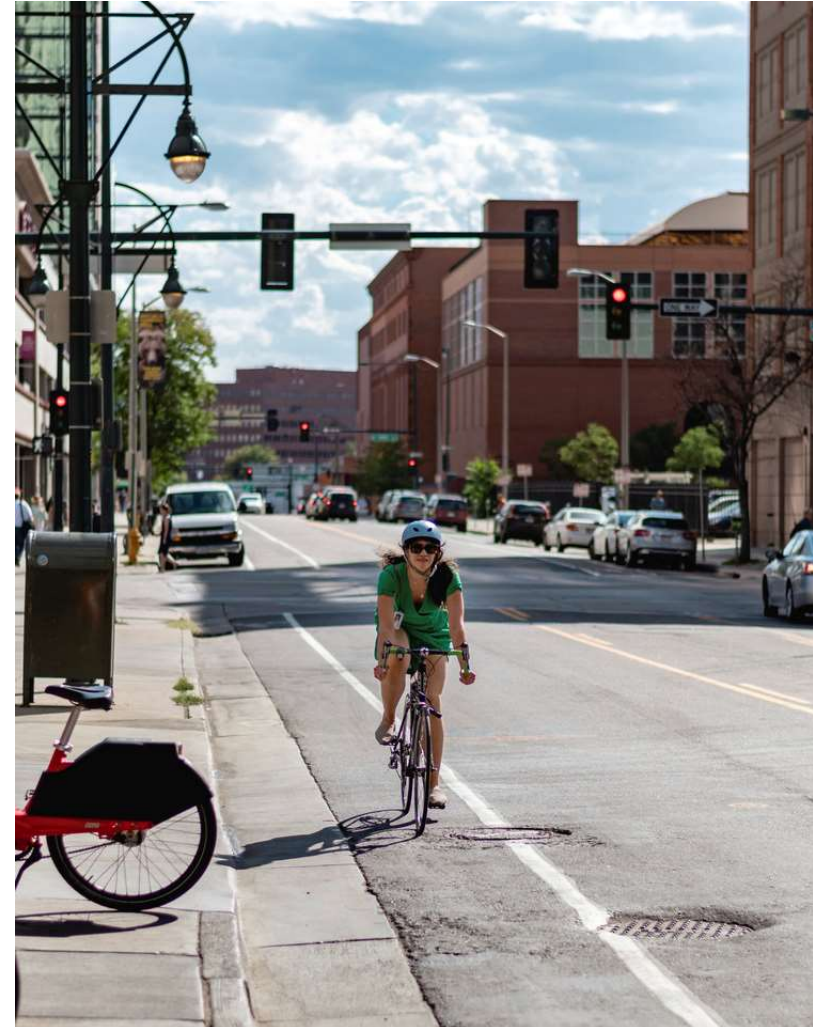


- GoLowell proposed bike corridors
- Other existing and planned bike routes
- Network gap
- Existing bike lane
- Existing off-road trail
- Planned off-road trail
- Other planned bike corridors



## Phase 3: Goals of This Meeting

- Share why Appleton St and Broadway St were chosen as **Focus Corridors**
- Neighborhood input on Appleton St & Broadway St options
- Intimate talk about **trade-offs and constraints**
- Think about how to **balance** the real need for vehicle parking and the need to provide new opportunities for transportation





## GoLowell will also Consider...

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- **Maintenance** such as snow removal as a top safety concern
- Parts of the system that aren't necessarily part of the street, like **bicycle parking and LRTA website and app**
- **Education** and **enforcement**

Note: GoLowell recommendations will be a starting point for the above elements, which all may need additional planning, analysis, or coordination with multiple city departments or partners

# Appleton Street

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- Appleton Street Today
- Why Appleton Street
- Concepts for Appleton Street

# Broadway Street

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- Broadway Street Today
- Why Broadway Street
- Concepts for Broadway Street

# Appleton Street Today

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# Appleton St characteristics

- Mix of residential + commercial
- Narrow sidewalks on both sides with many light poles
- Serves bus route 2, 9, 11, 12, 41
- Parking pockets on both sides
- Many driveways and curb cuts



# Broadway Street Today

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# Broadway St characteristics

- Mix of commercial and residential
- Narrow sidewalks on both sides
- Serves bus route 6, 9
- Parking pockets on both sides
- Many curb cuts and driveways



# Why Appleton & Broadway Street

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# Public input process

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- A December 2016 Complete Streets workshop envisioned a variety of options that GoLowell builds upon
- Two public meetings with survey feedback
- Both streets outlined as a possible corridor from survey origin and destination information

# Safety considerations

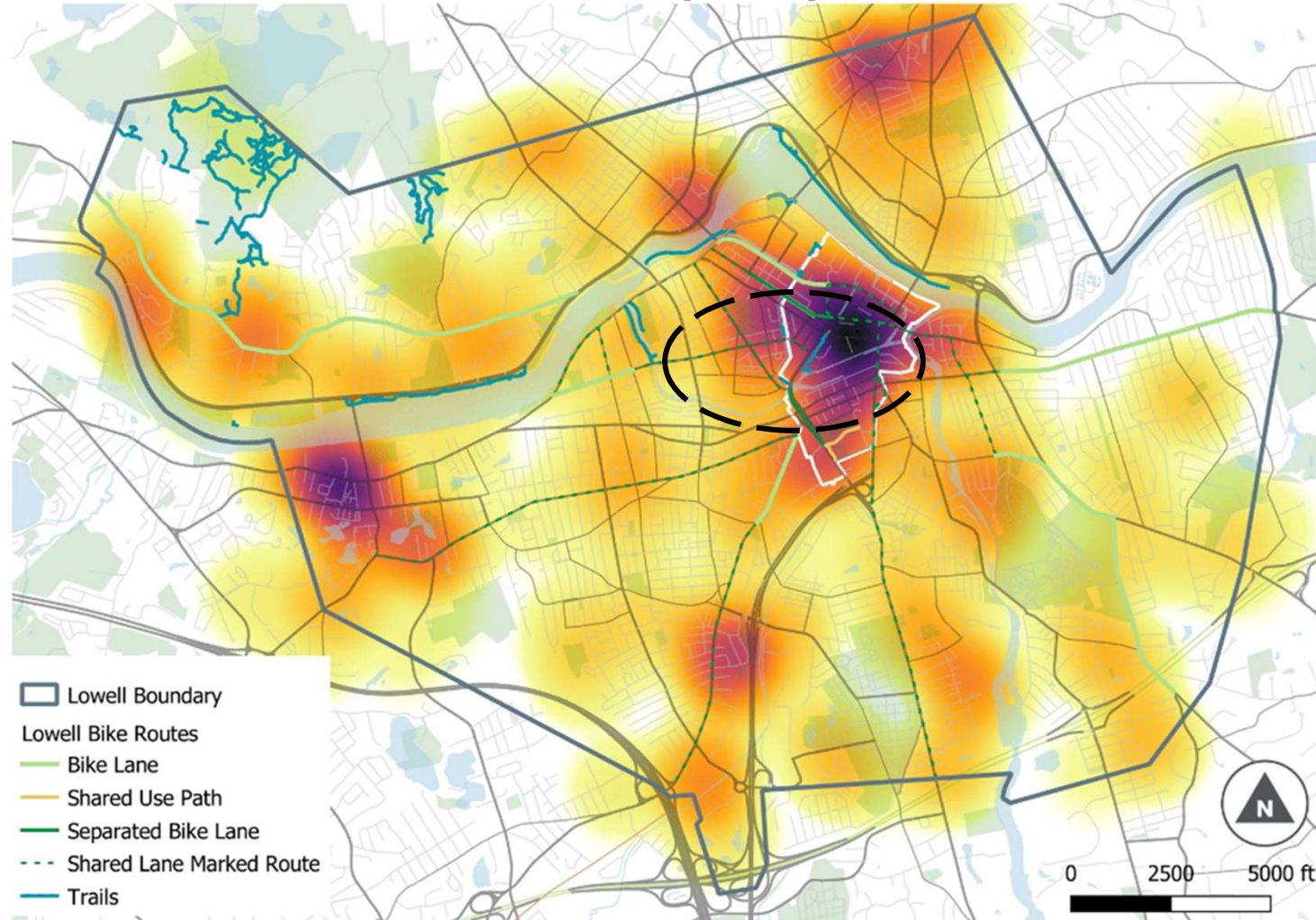
## Pedestrian and bicycle crash cluster





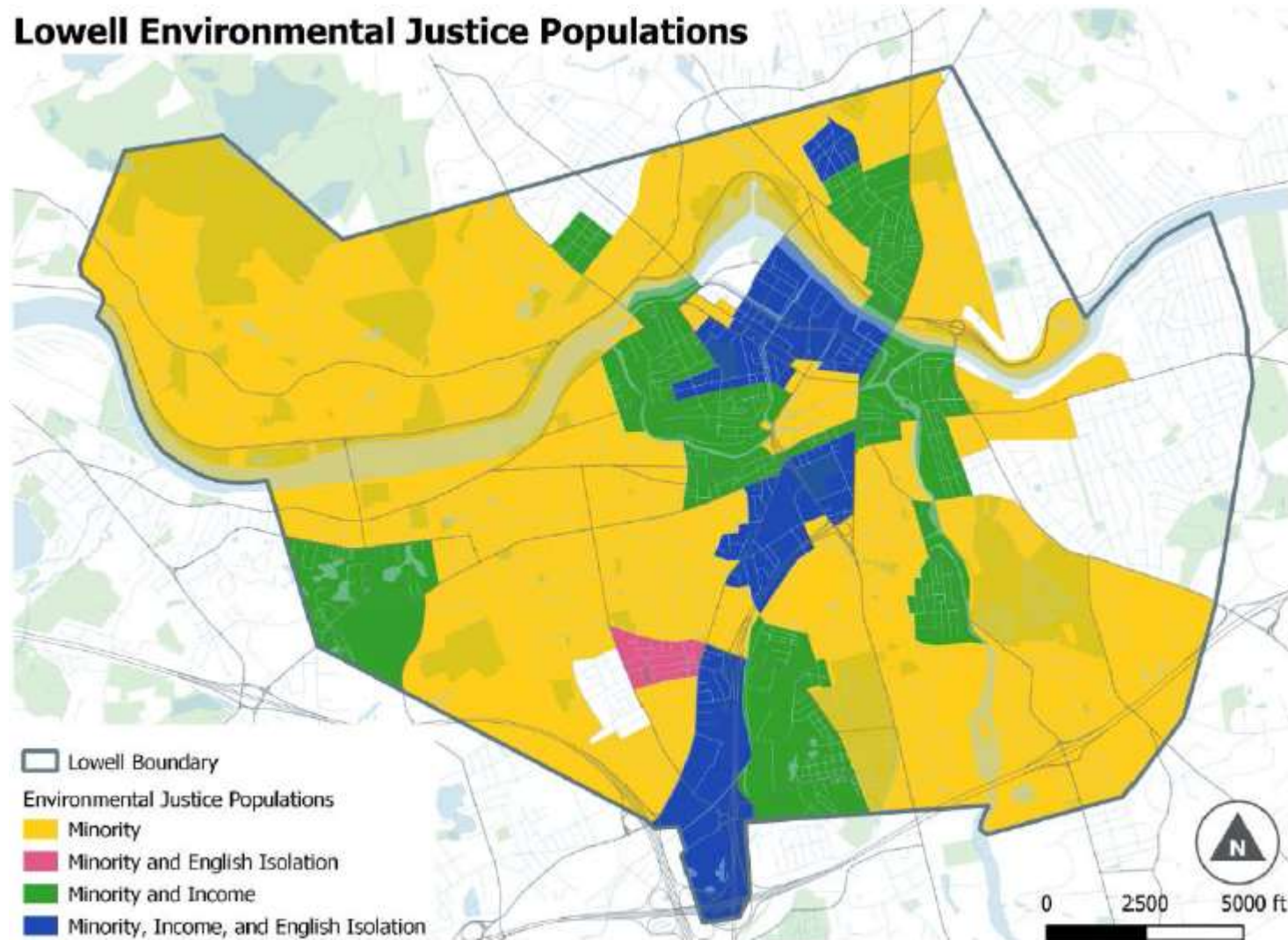
# Origin & Destination considerations

**Lowell Bike Routes & Relative Density of Key Destinations** **DRAFT**



# Equity considerations

**Lowell Environmental Justice Populations**



# Concepts for Appleton Street

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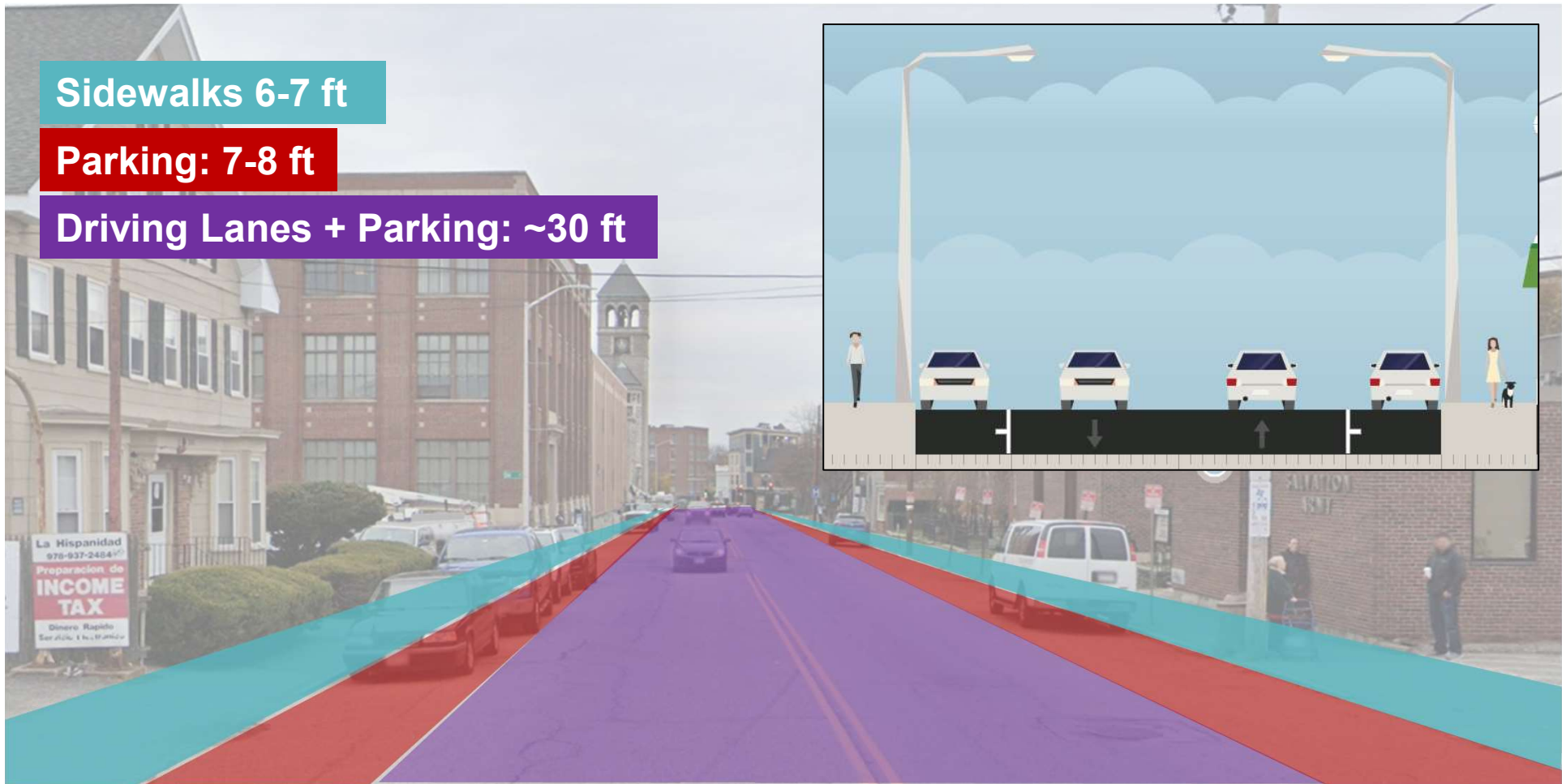




# Appleton St Section - Existing Space Allocation

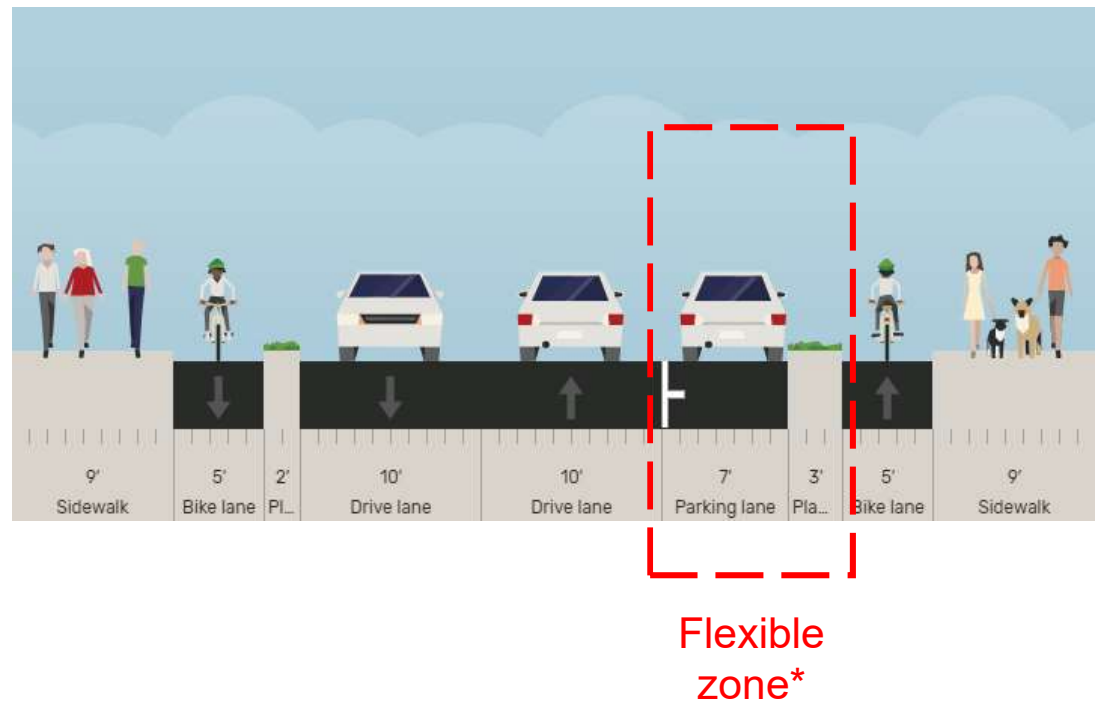


# Appleton St Section - Existing Space Allocation



# Appleton St – Concept 1

- Separated bike lane on both sides with buffer
- 9-foot-wide sidewalks
- 10-foot-wide driving lanes
- Remaining as “flexible zones” – parking, bus stops, trees, other – can be added on either side



\*Flexible zone may be situated on either side



# Appleton St Concept 1 – Chicanes

## Chicane

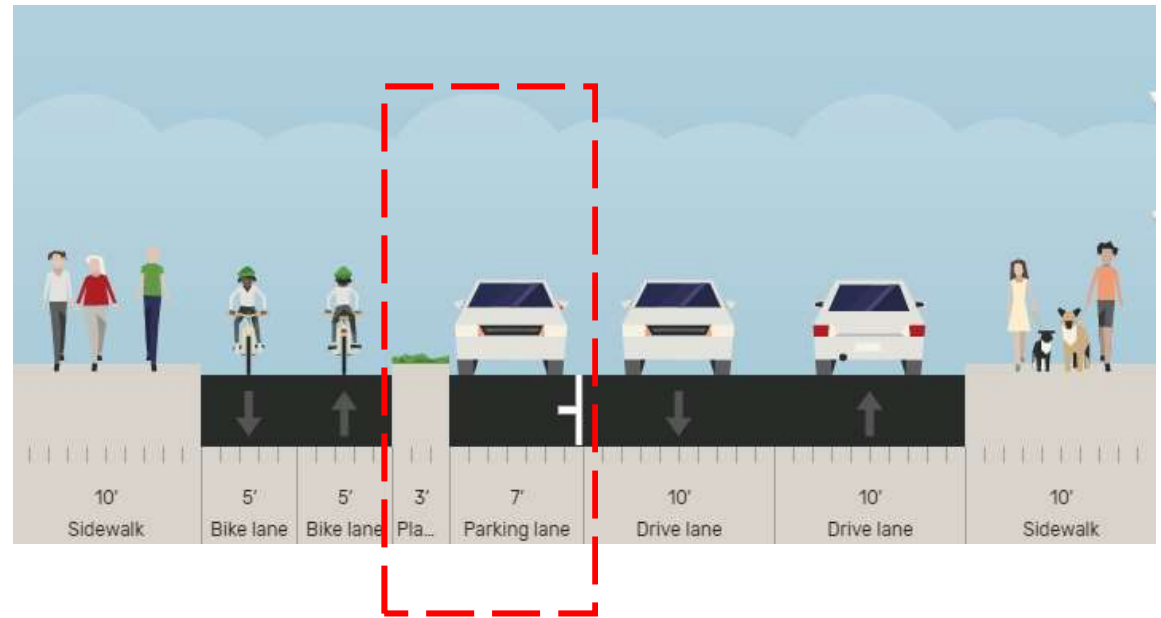
- Curb extensions on alternate sides of roadway that will narrow roadway and require drivers to steer from one side to another.
- Alternating flexible zones for Concept 1 will create chicane effect

Cambridge, MA



# Appleton St – Concept 2

- Separated two-directional bike lane with buffer on one side only
- 10-foot-wide sidewalks
- 10-foot-wide driving lanes
- Remaining as “flexible zones” -parking, bus stops, trees, other



Flexible  
zone\*

\*Flexible zone may be situated  
on either side



# Appleton St – “Flexible Zone” options

Parking protected bike lanes - Boston, MA



# Appleton St – “Flexible Zone” options

Bus stops - Cambridge, MA



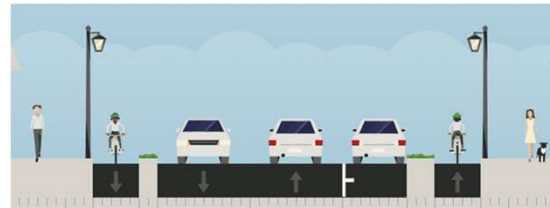
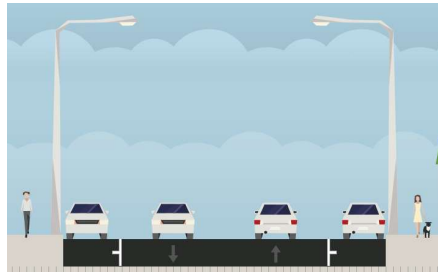


# Appleton St – “Flexible Zone” options

Green space/trees – Hennepin County, MN



# Appleton St - Concepts comparison

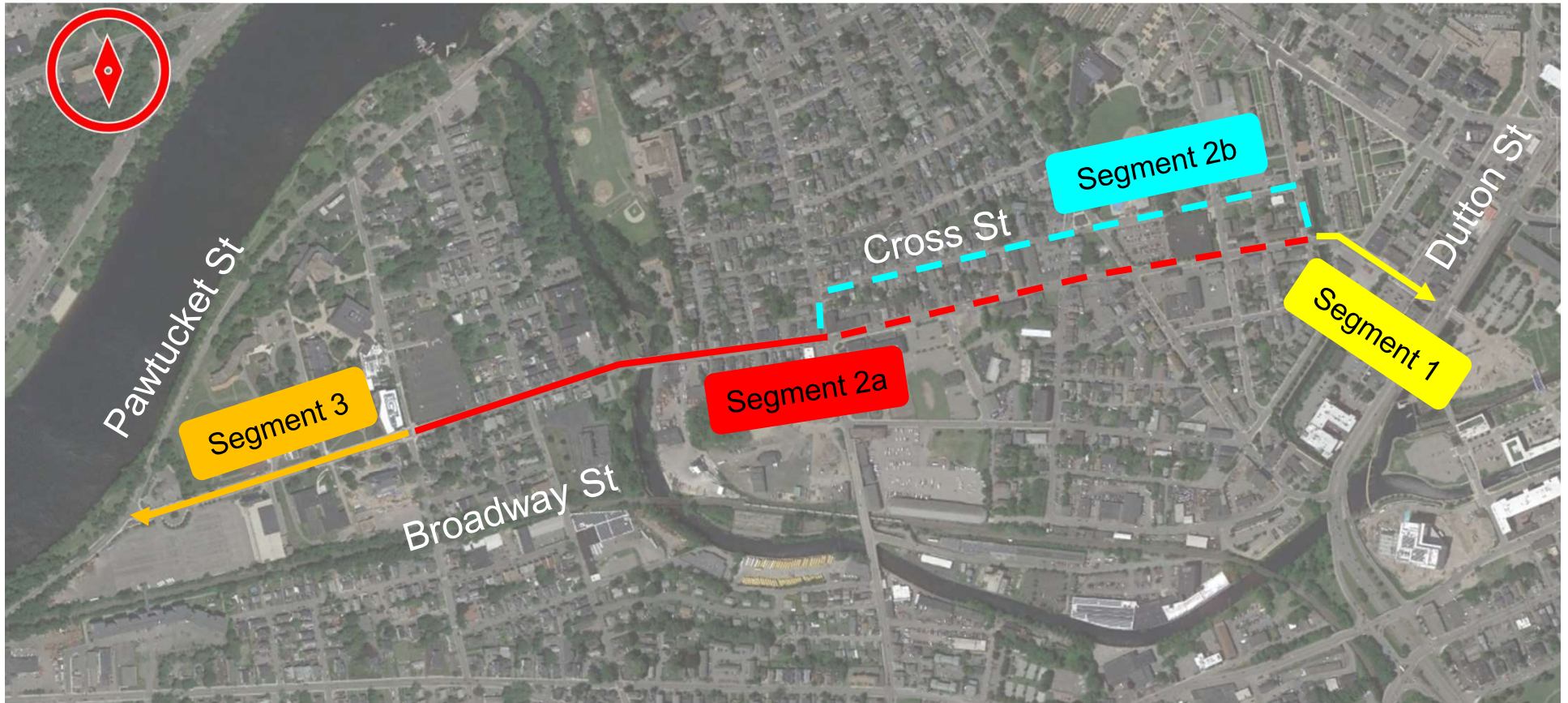


	Existing	Concept 1	Concept 2
Bike Lanes	None	Separated – on both sides	Separated – one side only
Traffic Calming	None	Lane narrowing, possible chicanes	Lane narrowing
Sidewalk on each side	5-6 feet	9 feet	10 feet
Flexible zones	None	Some space available on each side of the street	Space only for one side of the street

# Concepts for Broadway Street

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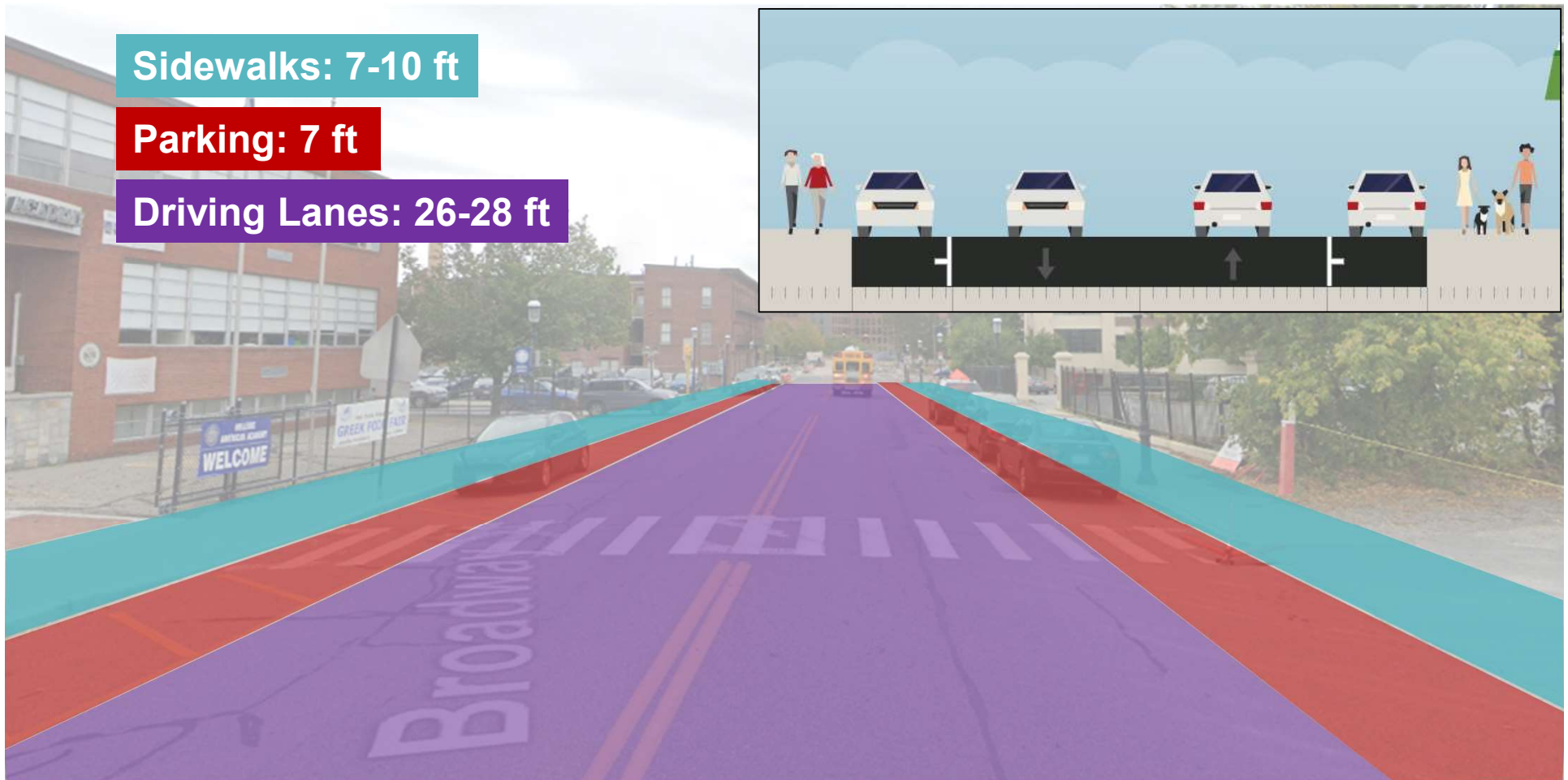


# Broadway St Segment 1 - Existing Space Allocation





# Broadway St Segment 1 - Existing Space Allocation

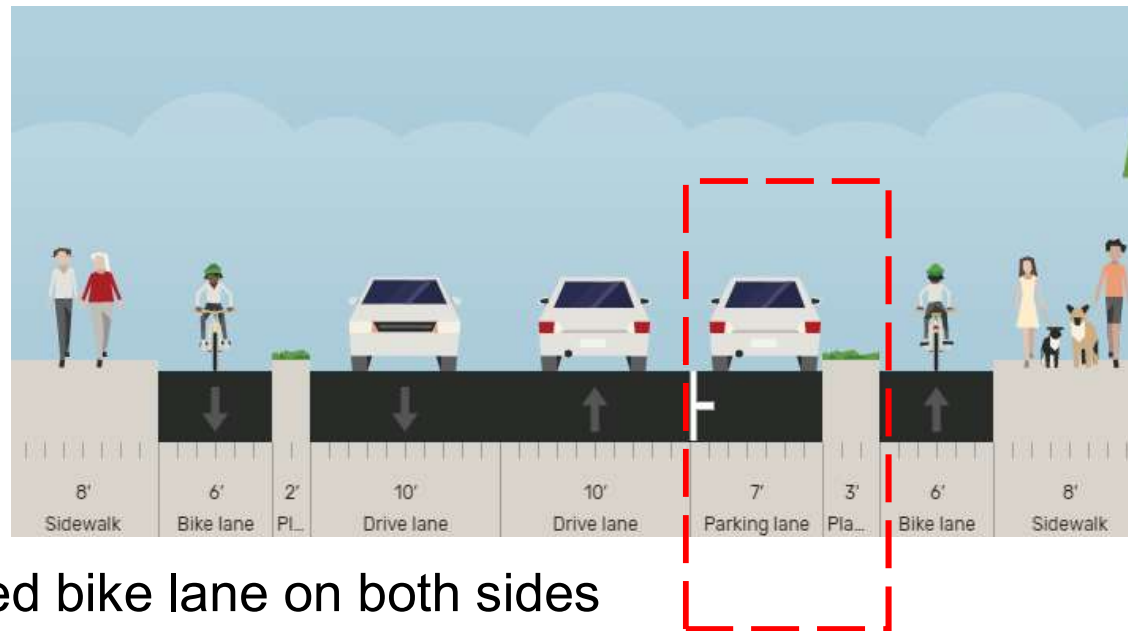


Sidewalks: 7-10 ft

Parking: 7 ft

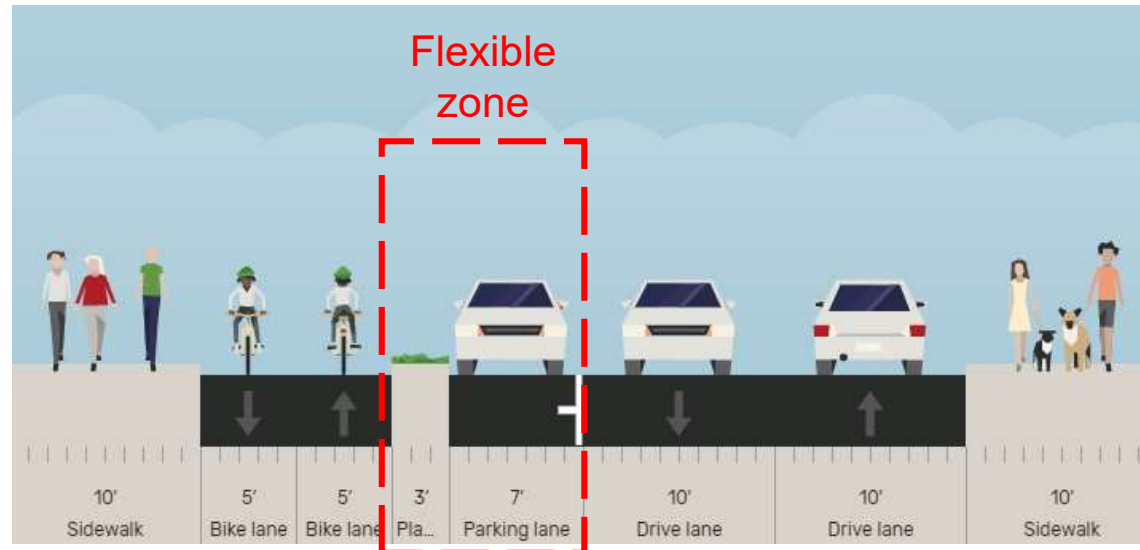
Driving Lanes: 26-28 ft

# Broadway St Segment 1 – Concept 1



- Separated bike lane on both sides
- 8-foot-wide sidewalks
- 10-foot-wide driving lanes
- Remaining space as “flexible zones” – parking, bus stops, greenery on west side of street

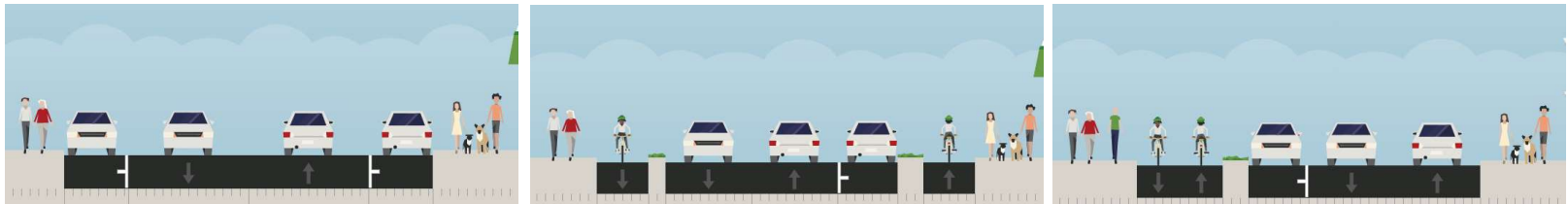
# Broadway St Segment 1 – Concept 1



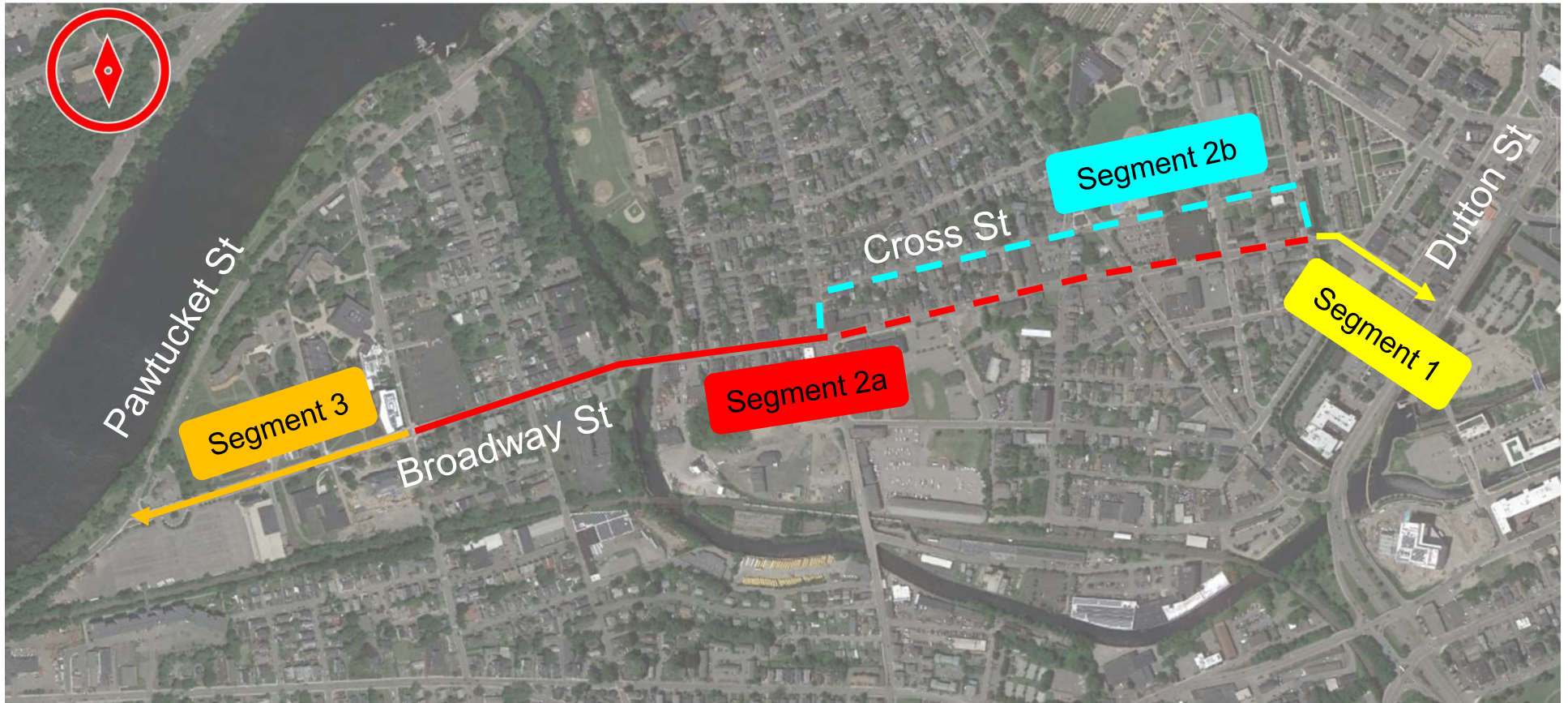
- Separated bike lane on one side – connecting to Cross St for Segment 2a
- 10-foot-wide sidewalks
- 10-foot-wide driving lanes
- Remaining space as “flexible zones” – parking, bus stops, greenery on west side of street. Parking space removed from east side.



# Broadway St Segment 1 - Concepts comparison



	Existing	Concept 1	Concept 2
Bike Lanes	None	Separated – on both sides	Separated – one side only
Traffic Calming	None	Lane narrowing	Lane narrowing
Sidewalk on each side	5-6 feet	9 feet	10 feet
Flexible zones	None	Space available on either side of the street	Space available on either side of the street



# Getting from Segment 1 to Segment 3: 2 options



**We are proposing one of these solutions:**

- 2a: Removing parking for bike lanes on Broadway
- 2b: Creating a parallel “neighborway” on Cross St



# Broadway St Segment 2a - Existing Space Allocation





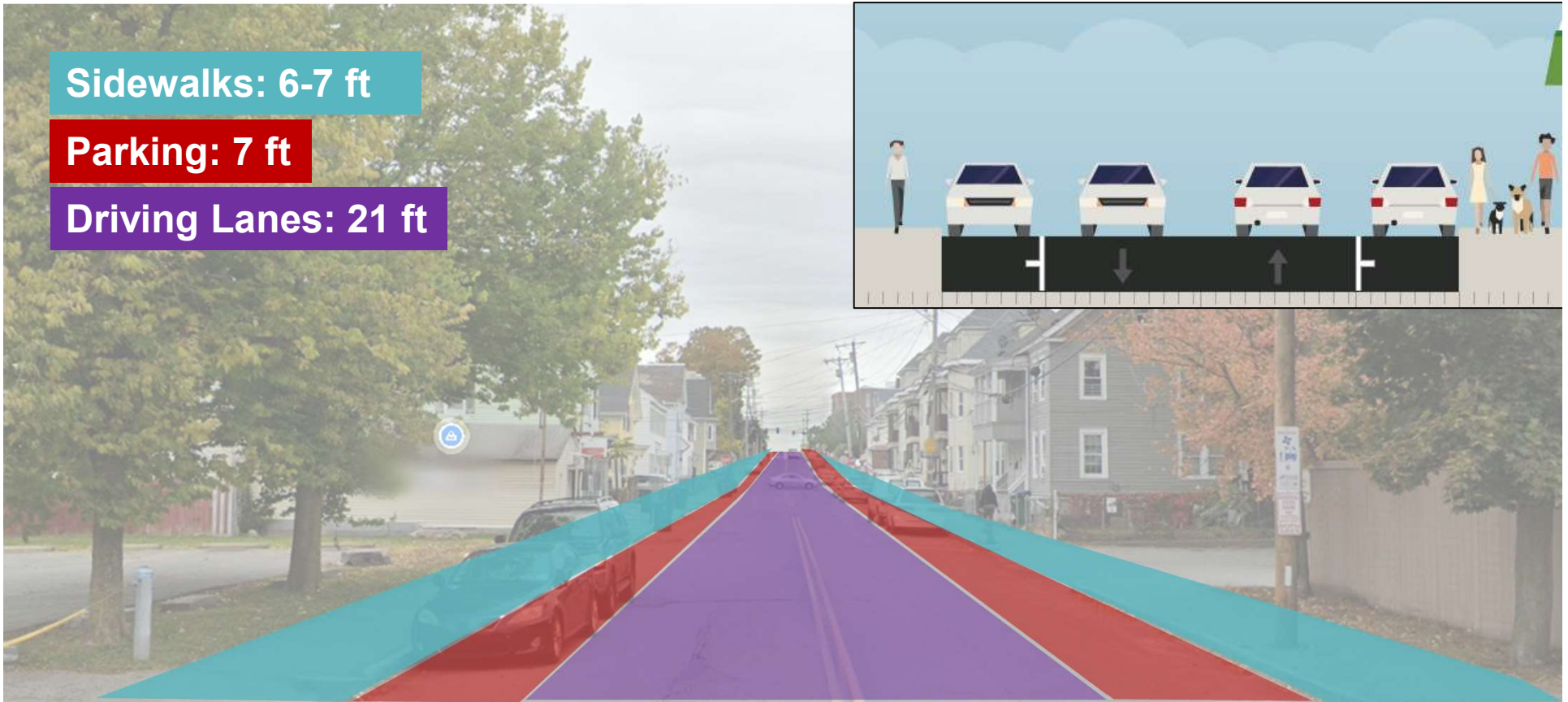
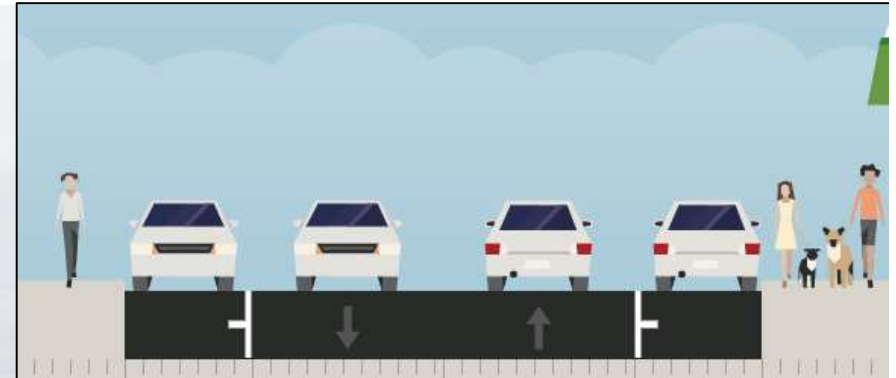
# Broadway St Segment 2a - Existing Space Allocation



Sidewalks: 6-7 ft

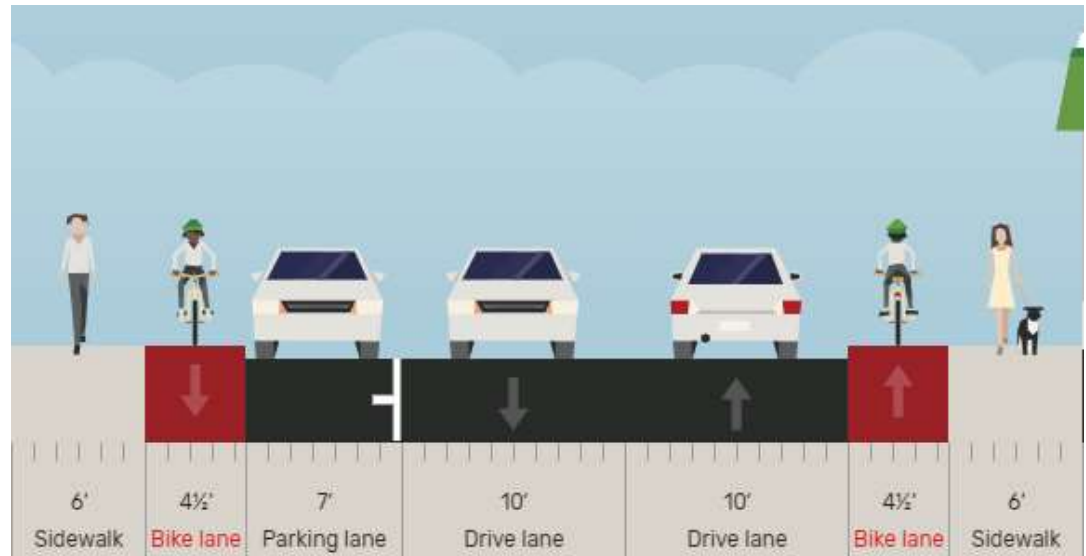
Parking: 7 ft

Driving Lanes: 21 ft



# Broadway St Segment 2a – Concept 1

- Raised bike lane at sidewalk level on both sides
  - Textured pavers and color for bike lane and sidewalk delineation
- 6-foot-wide sidewalks
- 10-foot-wide driving lanes
- Parking preserved on one side – determined based on block-by-block needs



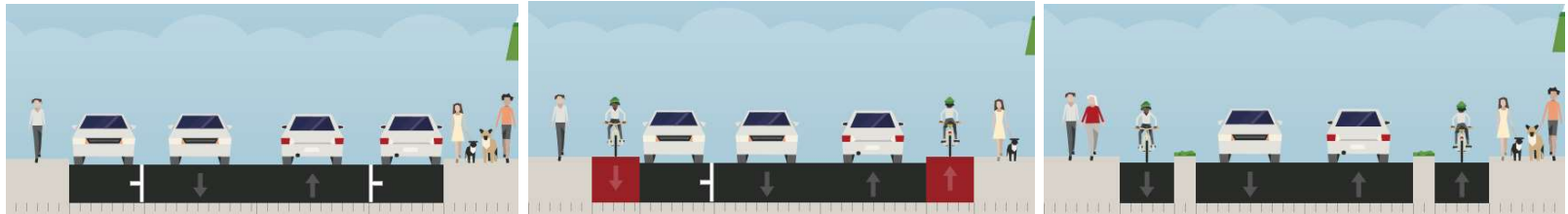
# Broadway St Segment 2a – Concept 2



- Separated bike lanes on both side with buffer
- 7-foot-wide sidewalks
- 10-foot-wide driving lanes
- No parking preserved



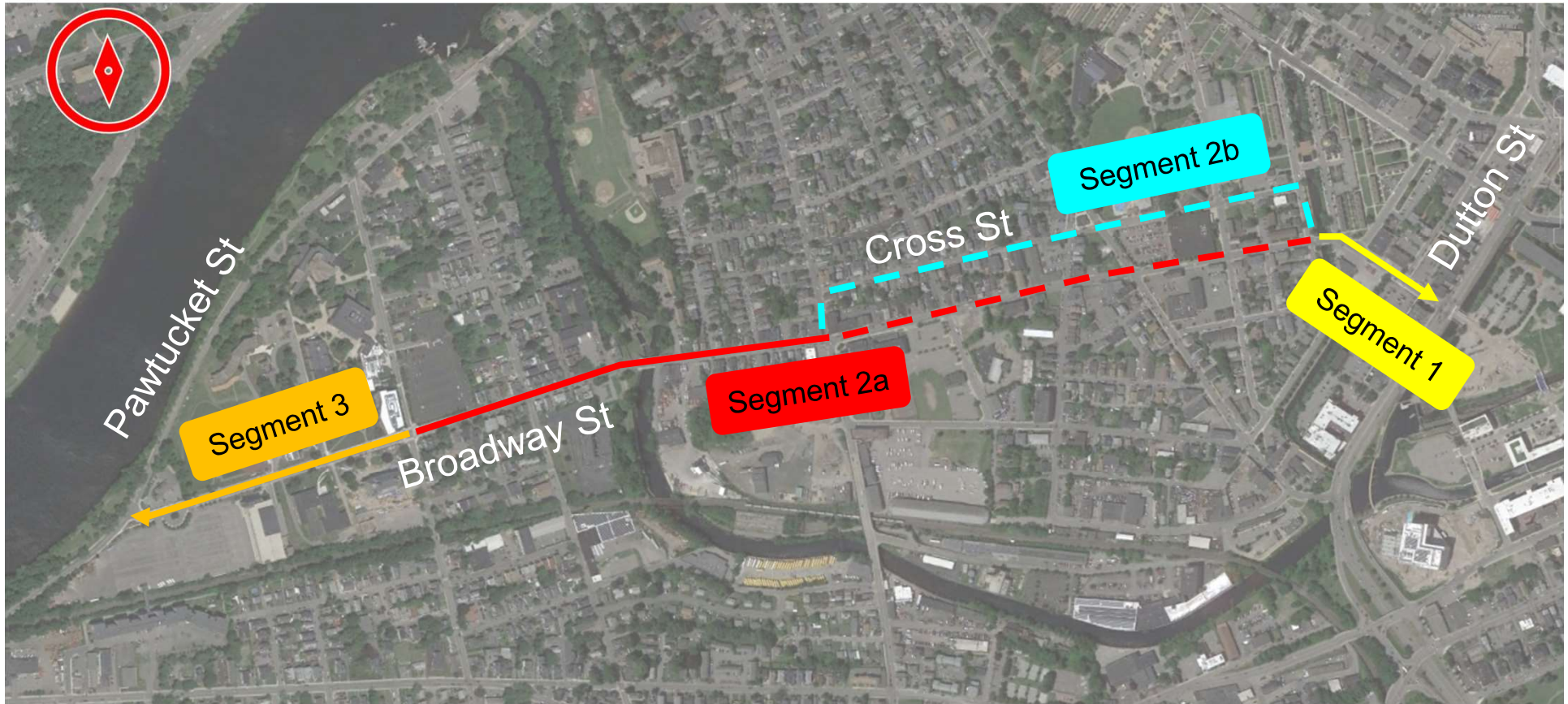
# Broadway St Segment 2a - Concepts comparison



	Existing	Concept 1	Concept 2
Bike Lanes	None	Raised at sidewalk level – on both sides	Separated – one both sides
Traffic Calming	None	Lane narrowing	Lane narrowing
Sidewalk on each side	6-7 feet	6 feet	7 feet
Parking	Both sides of the street	On one side of street	None



Broadway St diverts to Cross St before meeting back at Broadway  
@ School St



# Cross St Segment 2b – Existing Space Allocation





# Broadway St/Cross St Segment 2b – Existing Space Allocation



Sidewalks: 6-9 ft

Parking: ~7 ft

Driving Lanes: 14-16 ft

# Segment 2b Cross St – Neighborways Design



Example: Somerville, MA





# Segment 2b Cross St – Neighborways Design

Example: Portland, OR



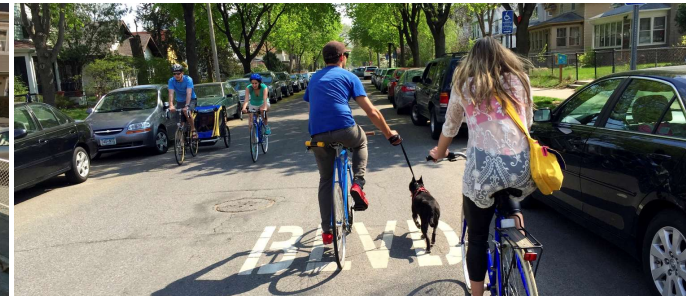
# Segment 2b Cross St – Neighborways Design

Example: Minneapolis, MN

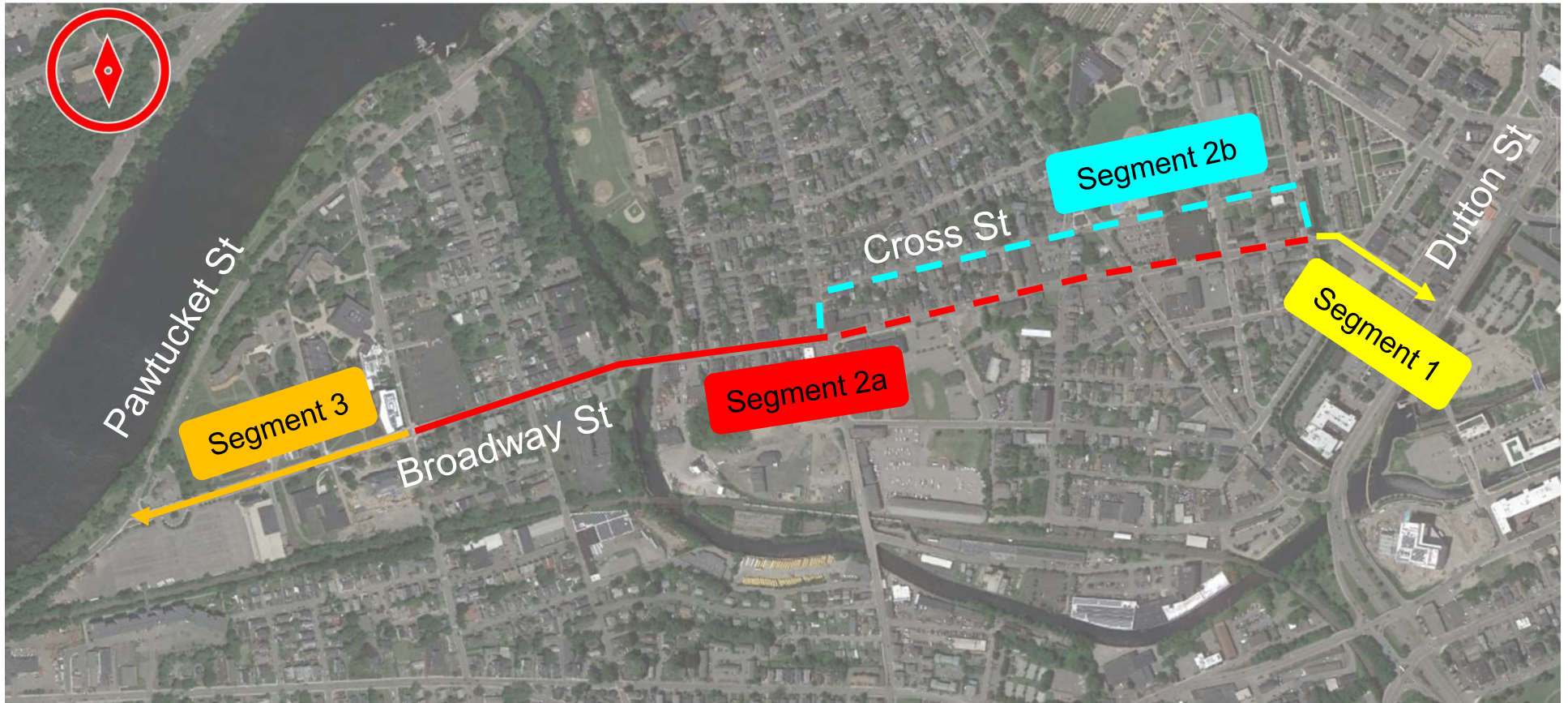




# Bridge St Segment 2b - Concepts comparison



	Existing	Concept
Bike Facility	None	Neighborhood design with shared lane markings
Traffic Calming	None	Shared lane markings, signs, street art to slow vehicles
Sidewalk	8-9 feet	8-9 feet

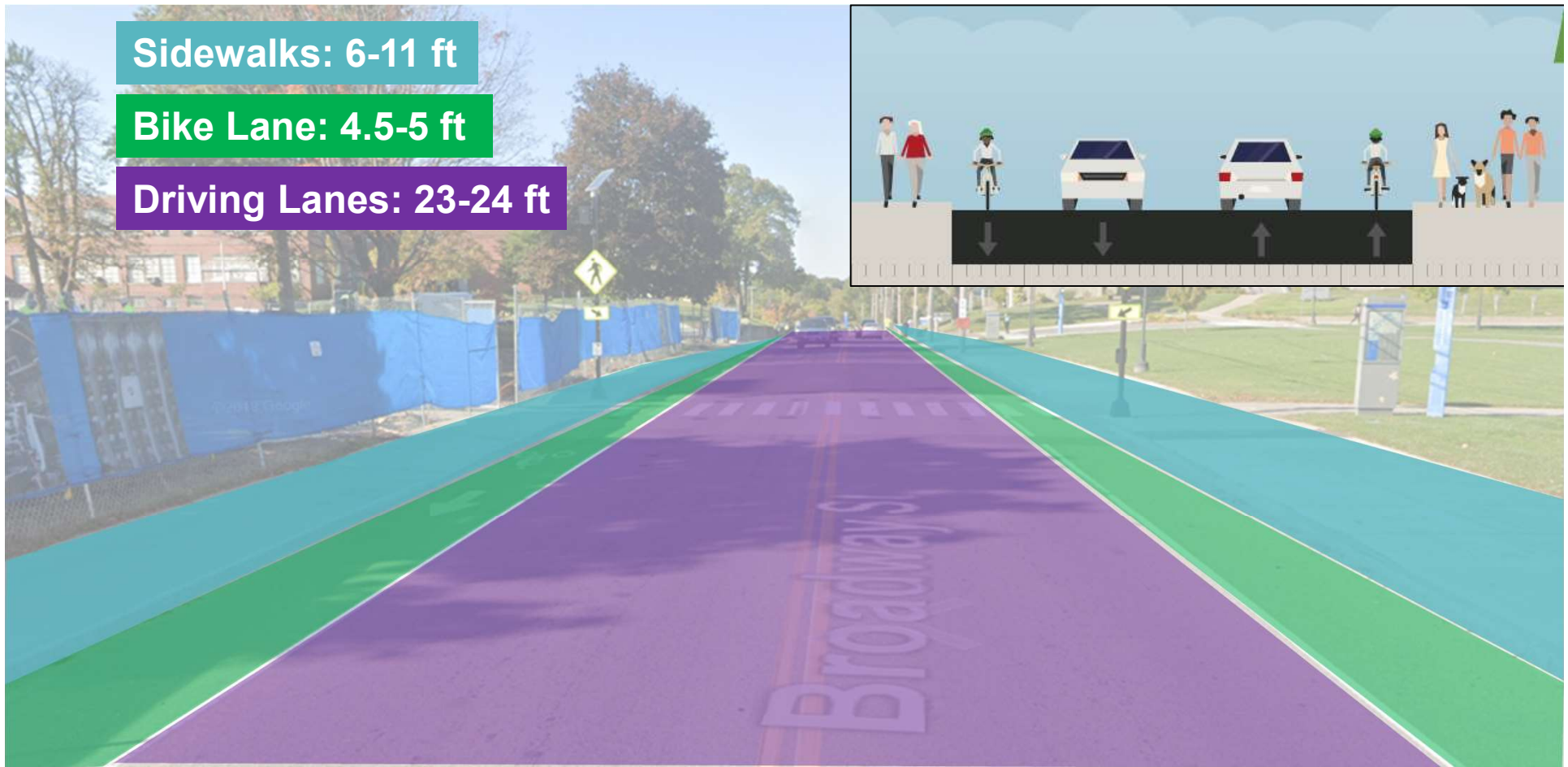




# Broadway St Segment 3 - Existing Space Allocation



# Broadway St Segment 3 - Existing Space Allocation

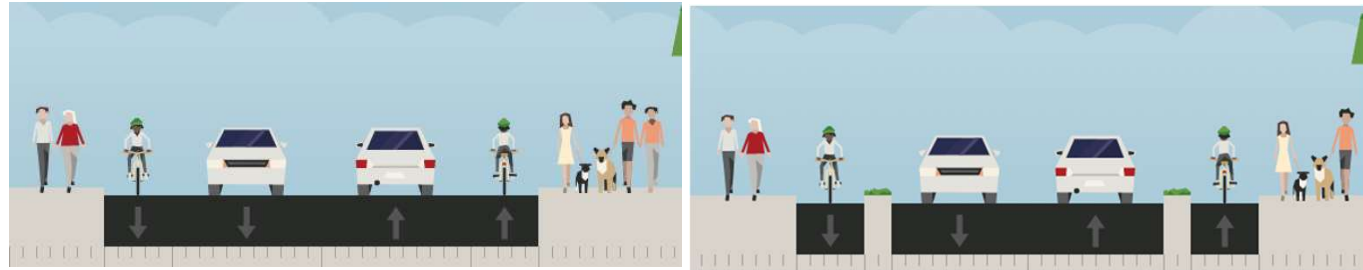


# Broadway St Segment 3 – Concept

- Separated bike lane on both sides with buffer
- 8-foot-wide sidewalks
- 10-foot-wide driving lanes



# Broadway St Segment 3 - Concepts comparison



	Existing	Concept
Bike Lanes	Conventional – on both sides	Separated - on both sides
Traffic Calming	None	Lane narrowing
Sidewalk on each side	7-11 feet	8 feet
Parking	None	None



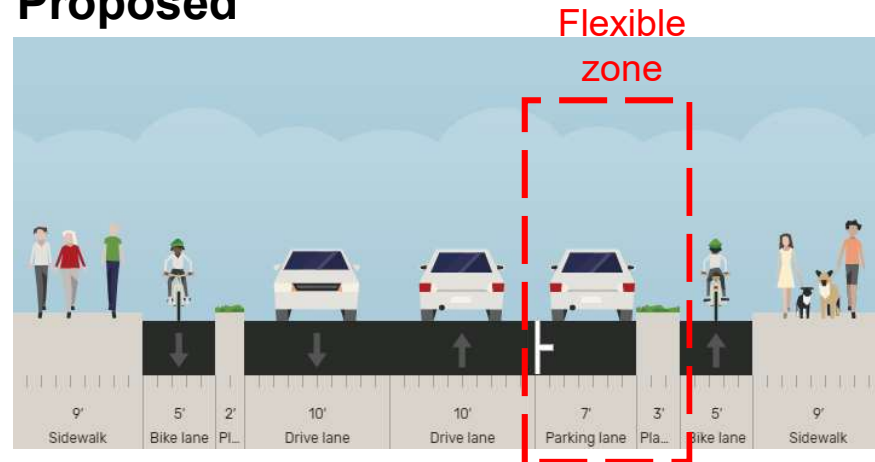
# Discussion



# Appleton St – Concept 1

1. What do you like about this concept?
2. What concerns do you have about this concept?

## Proposed



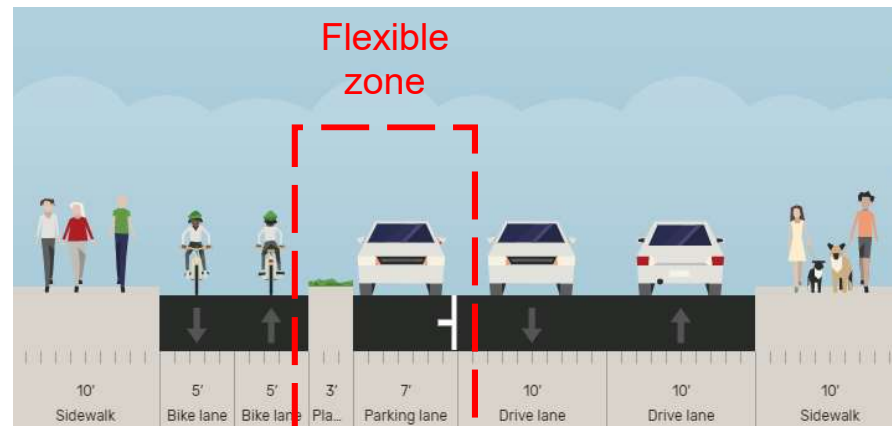
## Existing



# Appleton St – Concept 2

1. What do you like about this concept?
2. What concerns do you have about this concept?

## Proposed



## Existing



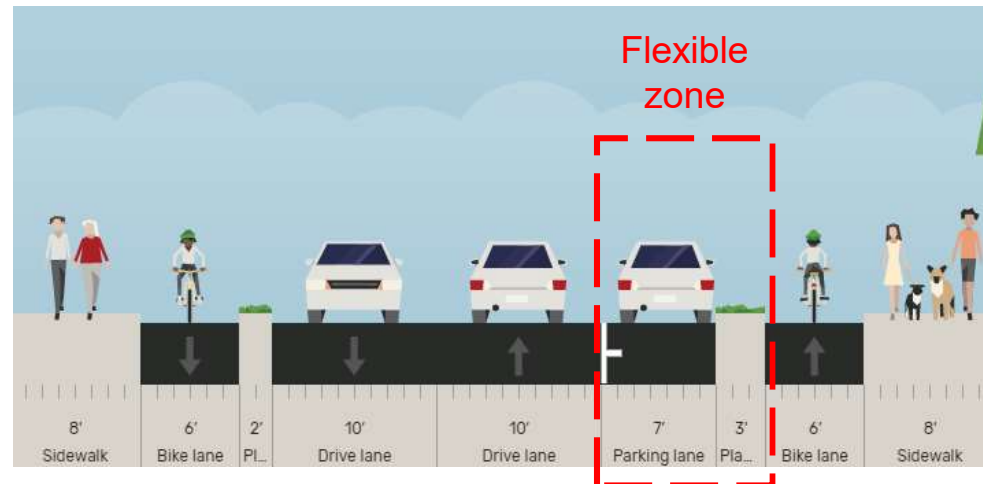




# Broadway St Segment 1 – Concept 1

1. What do you like about this concept?
2. What concerns do you have about this concept?

## Proposed



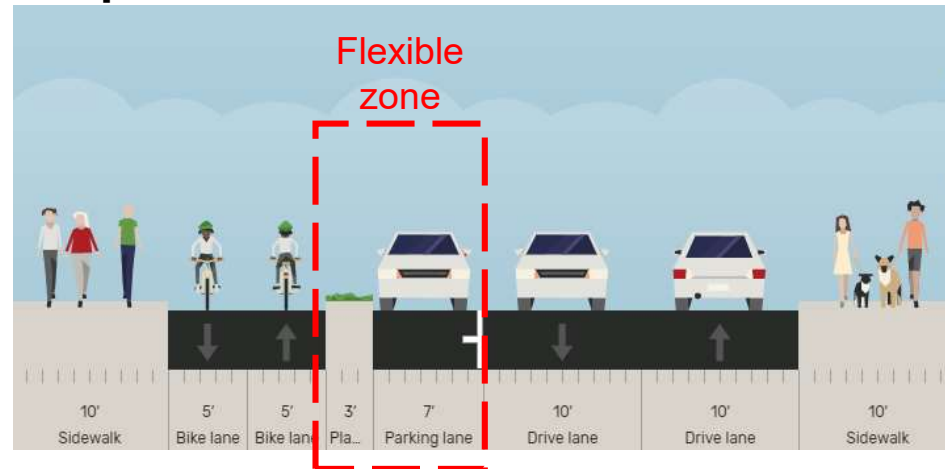
## Existing



# Broadway St Segment 1 – Concept 2

1. What do you like about this concept?
2. What concerns do you have about this concept?

## Proposed



## Existing

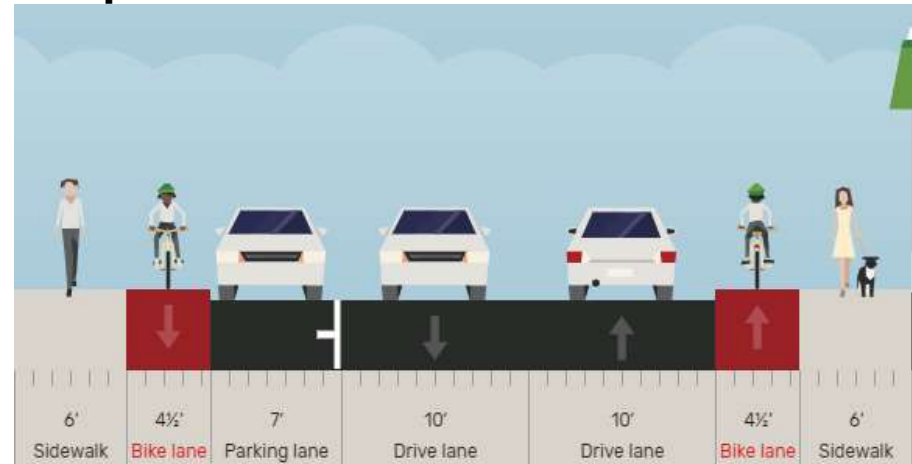


# Broadway St – Segment 2a

## Concept 1

1. What do you like about this concept?
2. What concerns do you have about this concept?

### Proposed



### Existing





# Broadway St – Segment 2a

## Concept 2

1. What do you like about this concept?
2. What concerns do you have about this concept?

### Proposed



### Existing



# Cross St – Segment 2b

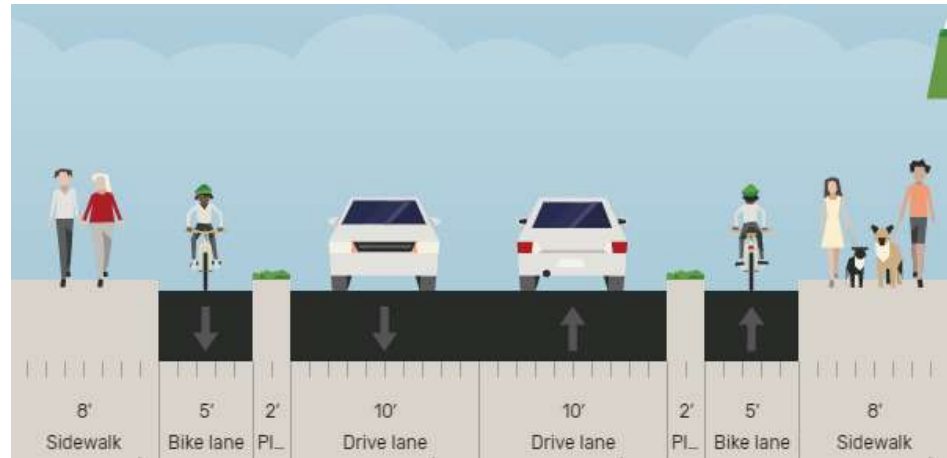
1. What do you like about the neighborways design concept?
2. What concerns do you have about this neighborways design concept?



# Broadway St – Segment 3

1. What do you like about this concept?
2. What concerns do you have about this concept?

## Proposed



## Existing

